INCH-POUND
MIL-PRF-22885/116B
5 August 2024
SUPERSEDING
MIL-PRF-22885/116A
16 October 2023

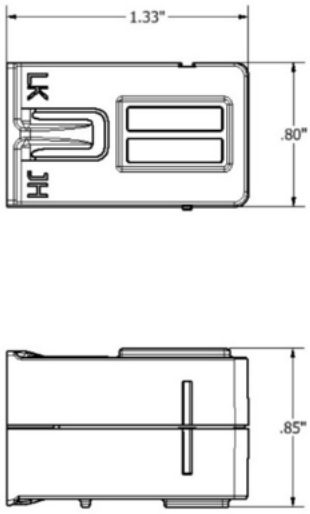
PERFORMANCE SPECIFICATION SHEET

MODULE, OPTIONAL ELECTRONIC COMPONENTS (OEC) COMPATIBLE WITH MIL-PRF-22885/117, SWITCHING, LOGIC FUNCTION AND TERMINAL INTERCONNECTS, COMMON TERMINATION SYSTEM (CTS)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the switches described herein shall consist of this specification and the latest issue of MIL-PRF-22885.

This specification covers the general requirements for Modules used as complementing functionality to the manually operated illuminated push button switches, switch assemblies as described on MIL-PRF-22885/108, MIL-PRF-22885/113 and associated OECs as described on MIL-PRF-22885/117. Additionally, this specification covers modules with the exclusive functionality of a Terminal Interconnect (Terminal block).



NOTES:
1. Dimensions are in inches.
2. Unless otherwise specified, tolerances are ±.010 for three place decimals and ±.03 for two place decimals.
3. Each module requires a Common Termination System (CTS) connector that shall be designed and constructed to meet the performance requirements of MIL-PRF-22885/108 figure 10.
4. The CTS is M22885/10818440 per MIL-PRF-22885/108 and shall be acquired from a source listed on QPL 22885.
5. Exact shape of the module is optional provided dimensions specified are not exceeded.

FIGURE 1. Module A.

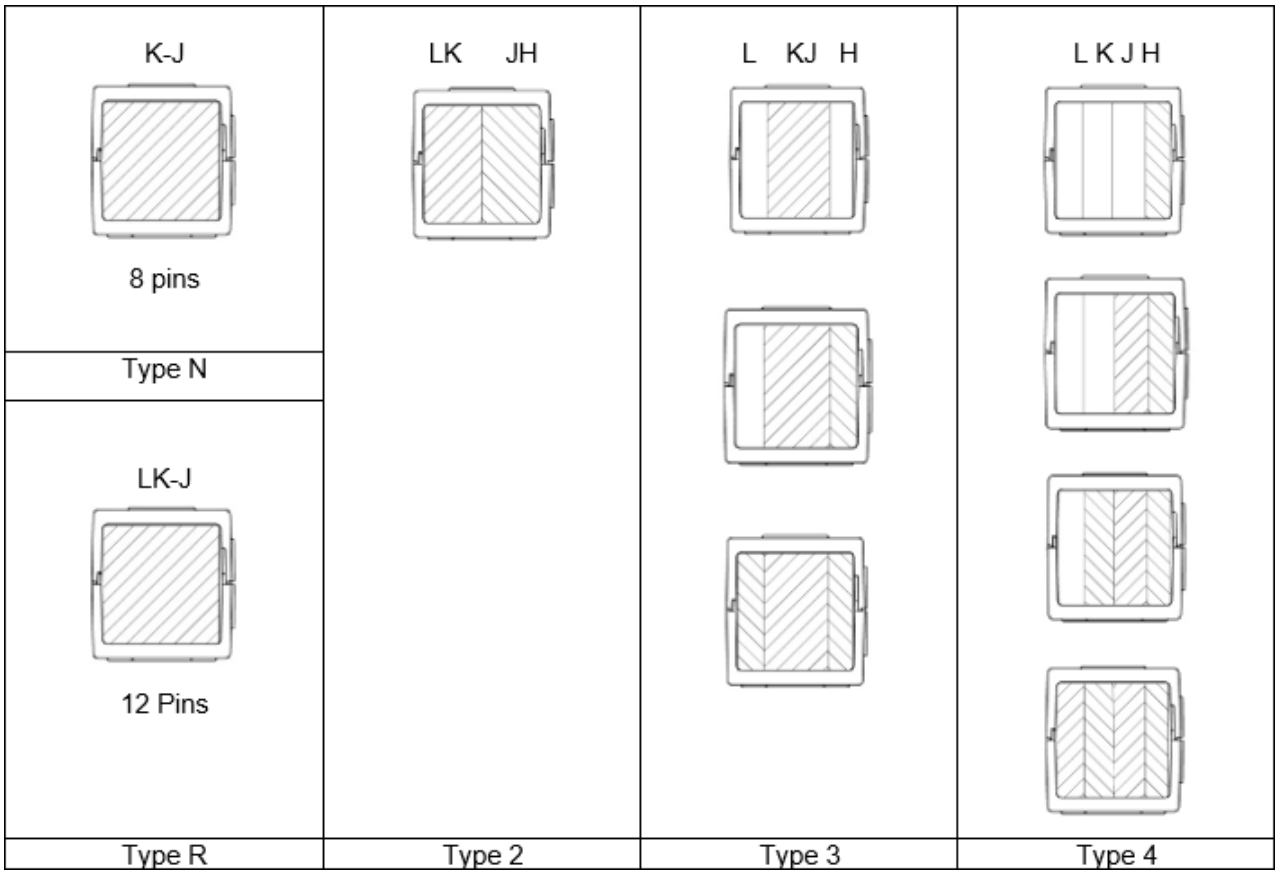


FIGURE 3. Types as defined on Table I.

TABLE I. OECs in the module.

Type	Size of Component allowed per type	Occupied Position
N	1 Series N OEC required	Per Figure 3
R	1 Series R OEC required	
2	2 Series C OECs Required	
3	1 Series C OEC Required plus optional 0 to 2 Series A OECs	
4	1 Series A OEC Required plus optional 1 to 3 Series A OECs	

Notes:
1) See Table II for SERIES IDs
2) Refer to MIL-PRF-22885/117 for Technical definition of each Series of OEC

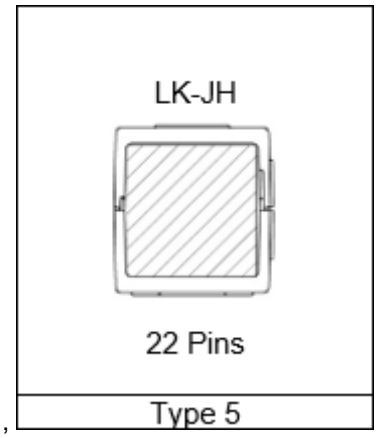


Figure 4. Type as defined in Table III.

TABLE II. Types of OECs in the module.

	Optional Electronic Component (OEC) Function	OEC Series	Mfg. ID	Mfg. ID Mils Spec ID
Functional and Electrical Parameters per MIL-PRF-22885/117	Solid State Relay	A	SSR	4
	Combination - Solid State Relay 1/	C	SSRC	B
	High Current Solid State Relay	A	SSR3	J
	Voltage Sensor 1/	A	VS	7
	Diode Pack	A	DP	3
	Terminal Block	A	TB	5
	Electronic Latch	C	EL	E
	Electronic Rotary	C	ER1	F
	Pulse Timer 1/	C	PT1	G
	Current Sensor 1/	A	CS	1
	Time Delay 1/	A	TD	6
	Square Wave Oscillator 1/	A	CT	2
	Defined Logic 1/	C	DL	D
	ARINC Single-Bit Converter 1/	N	SR429/1M	T
	ARINC Multi-Bit Converter 1/ 2/	N or R	SR429/4M	R
	ARINC Multi-Bit Binary Decoder 1/ 2/	N or R	SR429/4D	S
	232/422 Converter	N	RS422	V

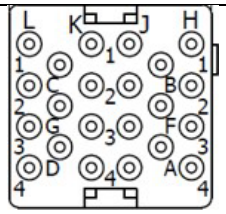
1/ These OEC have configurable options that will only be reflected on manufacturer part numbers.
2/ These OEC can be series N or R depending of the number of pins.

Terminal Interconnects

Shall utilize the Module A from Figure 1 and the CTS as described in note 3 and 4 of Figure 1.

Terminal Interconnect splices the various positions of the Module up to max of 22 pins. See Table III.

TABLE III. Allowable Terminal Interconnects for Type 5 (see Figure 4).

 2/	Type	Mfg. ID	# Nodes 1/	Mil-spec ID
TB22: 22 (All Pins connected)	5	MPTB1	1	1
TB11:H1-4,B,F,A,J1-4 TB11: K1-4,C,G,D,L1-4	5	MPTB2	2	2
TB11: (H1-H4,B,F,A,J1-J4) TB7: (K1-K4,C,G,D) TB4: (L1-L4)	5	MPTB3	3	3
TB11: (H1-4,B,F,A,J1-4) TB4:(K1-K4) TB3: (C,G,D) TB4: (L-4)	5	MPTB4	4	4
TB4: (H1-4) TB3: (B,F,A) TB8: (J1-4,K1-4) TB3: (C,G,D) TB4: (L1-,L4)	5	MPTB5	5	5
TB4: (H1-4) TB3: (B,F,A) TB4: (J1-4) TB4: (K1-4) TB3: (C,G,D) TB4: (L1-,L4)	5	MPTB6	6	6

1/ Maximum Current rating is 7.5 Amps per node
2/ This drawing is for reference only and it is fully described on MIL-PRF-22885/108 figure 10.

GENERAL REQUIREMENTS:

Design and Construction: See Figures 1 through 3

Functional Specifications: See MIL-PRF-22885/117.

Materials:
Housing: High temperature thermoplastic.
Interconnect Pins: Per MIL-PRF-22885/117 and CTS per Figure 2.

Weight:
Module without CTS– 16 grams maximum
Module with CTS– 22 grams maximum
Module with CTS and Right-angle bracket – 32 grams maximum
Module with CTS and Right angle and Flush mount bracket – 42 grams maximum
Module with CTS and Right-angle bracket – 32 grams maximum

Installation Accessories:- Each module may include installation accessories such brackets or protective boots.

Shock II: High Impact Shock applicable only to OECs mounted in MIL-PRF-22885/108 pushbutton switches and MIL-PRF-22885/116 Logic Accessory Modules.

Electrical and EMC Requirements: See MIL-PRF-22885/117 for maximum levels per each OEC.

When Environmental and EMI/EMC tests that are based on a number of actuation cycles are performed on OECs that do not actuate, the test shall be ran for a similar length of time.

Part or Identifying Numbers (PIN): PIN's are assigned as follows:

Part Number for modules listed with components from Table II

M22885/116-A _ -_ _ _ _.

Per Column Mil Spec ID in Table II
1 for Module from Figure 1

Part Number for modules listed with Interconnects Table III

M22885/116-A__- T__.

Per Column Mil Spec ID in Table III
1 for Module from Figure 1

TABLE IV. Group A Test Inspection.

Visual and mechanical examination (Size and weight) 1/
Operating Characteristics 2/
Dielectric Withstanding Voltage/3/4/5

1/ To be performed on each Lot and by Series of product.
2/ Functional test at typical operating voltage.
3/ Applicable between all leads and housing if metal surrounding OEC under test.
4/ Applicable between Terminal Interconnect Nodes.
5/ DWV not applicable to any other OEC

TABLE V: Initial Qualification

Test Sample	Group	Number of Samples	Additional Testing	Requirement of Additional Testing
TD1/W02S-S	I II III IV V VI	6 2 2 2 2 1	II: Shock, Vibration, Salt Spray	MIL-STD-202-213, MIL-STD-202-101
EL1-S	I II III IV V VI	10 2 1 2 4 2	II: Moisture Resistance	MIL-STD-202-106
SSRCH/2121-S	I II III IV V VI	10 2 6 2 2 2	III: Moisture Resistance	MIL-STD-202-106
SR429/1/353AS[20]-S	I II IV V VI	2 2 1 1 1	II: Thermal Shock, Shock I, Moisture Resistance, Salt Spray	MIL-STD-202-107, MIL-STD-202-213, MIL-STD-202-106, MIL-STD-202-101
SR429/4D3XX/340GAB[23,22,21]-S	I II III IV V VI	4 1 1 1 1 1	II: Thermal Shock, Shock I, Moisture Resistance	MIL-STD-202-107, MIL-STD-202-213, MIL-STD-202-106

Group I: Visual and Mechanical Examination, Operating Characteristics, and Marking Visibility
Group II: Altitude/Over Pressure, High Temp Survival (Operating/Non-Operating), Low Temp Survival
Group III: Thermal Shock
Group IV: Shock I, Vibration
Group V: Moisture Resistance
Group VI: Solderability

Similarity based qualification testing may be used on Optional Electronics Components (OEC) when the component being qualified has a similar reliability, similar type electronic components, and similar manufacturing process to a component that has been previously qualified and approved.

TABLE VI. Group B Inspection testing.

		Test Sample PIN's and Sample Numbers																
		LM-1210- E-MABHG		LM-1210- E-MAANP		LM-1210- E-MAEYM		LM-1210- E-MAEYN		LM-1210- E-MACPH		LM-1210- E-MADBX		LM-1210-G-MAFAE				LM-1210-X-MAGRU
		M22885/116		M22885/116		M22885/116		M22885/116		M22885/116		M22885/116		M22885/116				M22885/116
		A1-7		A1-7		A1-7		A1-7		A1-2D2		A1-2D2		A1-64				A1-V
	Test Method	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Visual	4.7.1 of MIL-PRF-22885	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
EMC/EMI	Table LXVI MIL-PRF-22885/117	X		X		X		X		X		X				X		X
Shock I	MIL-STD-202-213		X								X			X				
Drying Period			X								X			X				
Insulation Resistance before Moisture	MIL-STD-202-302		X								X			X				
Moisture Resistance	MIL-STD-202-106		X								X			X				
Insulation Resistance after Moisture	MIL-STD-202-302		X								X			X				
Salt Spray	MIL-STD-202-101				X								X		X			

		Test Sample PIN's and Sample Numbers																
		LM-1210- E-MABHG		LM-1210- E-MAANP		LM-1210- E-MAEYM		LM-1210- E-MAEYN		LM-1210- E-MACPH		LM-1210- E-MADBX		LM-1210-G-MAFAE				LM-1210-X-MAGRU
		M22885/116		M22885/116		M22885/116		M22885/116		M22885/116		M22885/116		M22885/116				M22885/116
		A1-7		A1-7		A1-7		A1-7		A1-2D2		A1-2D2		A1-64				A1-V
Electrical Endurance Inductive @ Altitude	4.7.28.2 of MIL-PRF-22885						X		X								X	X
Dielectric Withstanding @ Altitude	MIL-STD-202-301						X		X								X	X
Electrical Endurance Resistive @ Sea Level	4.7.28.2 of MIL-PRF-22885						X		X								X	X
Dielectric Withstanding Voltage	MIL-STD-202-301						X		X								X	X
Operating Characteristics	4.7.6 of MIL-PRF-22885	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dielectric Withstanding Voltage	MIL-STD-202-301		X								X			X				
Marking Visibility	MIL-STD-1285	X		X		X		X		X		X	X			X	X	

Referenced documents:

MIL-PRF-22885
MIL-PRF-22885/108
MIL-PRF-22885/117
MIL-STD-202-101
MIL-STD-202-106
MIL-STD-202-107
MIL-STD-202-213
MIL-STD-202-301
MIL-STD-202-302
MIL-STD-1285
QPL 22885

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(Project 5930-2024-060)

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